

### **REMARKS**

Claims 1-4, 6-9, and 11 are currently pending in the application. Claims 1 and 6 are in independent form.

Claims 1-4, 6-9, and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,200,334 to Dunn in view of U.S. Patent Application Publication No. 2003/0224530 to Anvar, et al. Specifically, the Office Action holds that Dunn discloses a charge-transfer chemical sensor comprising a sol-gel material affixable to a predetermined surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical, but does not specifically disclose a backing that enables affixation to the predetermined surface. The Office Action holds that Anvar, et al. discloses a sensor having three layers, wherein the adhesion of sol-gel layers can be promoted by an adhesion layer between one sol-gel layer and another or a sol-gel and a substrate. Therefore, it would have been obvious to modify Dunn's sensor to include a backing to enable the sensor to be affixable to a surface as disclosed in Anvar, et al. Reconsideration of the rejection under 35 U.S.C. §103(a), as being unpatentable over Dunn in view of Anvar, et al. is respectfully requested.

"Any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed"; however, that reason must be present for the combination to be obvious. *KSR Intern Co. v. Teleflex*, 127 S. Ct. 1727, 1742, U.S. (2007). This requirement was confirmed in *Takeda Chem. Indust., et al. v. Alphapharm*, No. 06-1329 (Fed. Cir. 2007).

"The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82

USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.” MPEP Section 2143.

“The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art.” *KSR International Co. v. Teleflex Inc.*, 83 USPQ2d 1385, 1395 (2007) and MPEP Section 2143.

Claims 1 and 6 have been amended to positively claim the predetermined exterior surface that the sensor is affixed to. No new matter has been added.

Dunn discloses a porous glass structure prepared by a sol-gel process that entraps an active biological material. The structure is useful as sensors for detecting the presence of compounds that can react with the entrapped material, and photometric detection can be used to monitor the changes in the entrapped enzyme or its environment in use. Dunn does not, however, disclose using the structure to detect a chemical such as chemical warfare agents, agricultural pesticides, and insecticides. Dunn also does not disclose a backing that allows affixation to an exterior predetermined surface.

Anvar, et al. discloses a sensor with three sol-gel layers that can adhere to a substrate by an adhesion layer. This adhesion layer can also be used to connect the separate sol-gel layers to each other. Anvar, et al. does not disclose a sensor wherein the **substrate** includes an adhesion layer in order to be affixed on an exterior surface. Anvar, et al. also does not disclose a sensor that can detect chemical warfare agents, agricultural pesticides, and insecticides.

It would not be obvious to affix the sensor of Anvar, et al. on an exterior surface. In order to affix a sensor on an exterior surface, there are at least two important factors that needed to be considered and satisfied: (1) good adhesion between the sensor and exterior, and (2) no strong chemical interaction between the sensor and surface to destroy or reduce the sensing activity. The sensors of the present invention use specific sol-gel functional groups and structures to achieve the goals of fixing on different exterior surfaces, e.g., metal, plastics, paints, ceramics, textiles. Anvar's sensor uses the layer-by-layer devices on glass that are not sufficient to be put on different exterior surfaces, e.g., metal, plastics, paints, ceramics, textiles, because the two requirements above. Therefore, one would not use the teaching of Anvar, et al. to affix the sensor of Dunn to an exterior surface.

This distinction is important because of the chemicals that the sensor can detect, i.e. chemical warfare agents, agricultural pesticides, and insecticides, as required by the presently pending independent claims. These chemicals are found out in the environment and war zones. The sensor can easily be used by field workers or soldiers by attaching the sensor to their clothing or a vehicle and the sensor presents a fast and sensitive response that can easily be interpreted by these individuals who do not have experienced knowledge of chemicals. While Dunn makes a general statement about use of the porous glass structure in the environment, these specific uses as well as the affixation to an exterior surface are not disclosed or suggested by Dunn or Anvar, et al.

Since neither the cited references alone or in combination with knowledge in the art suggest the currently claimed invention, it is consequently respectfully submitted that the claims are clearly patentable over the combination, even if the combination were to be applied in opposition to applicable law, and reconsideration of the rejection is respectfully requested.

Claims 1-4, 6-9, and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,637,507 to Wicks in view of Anvar, et al. Specifically, the Office Action holds that Wicks discloses a charge-transfer chemical sensor comprising a sol-gel material affixable to a predetermined surface, and indicating means within said sol-gel for detecting and signaling a presence of at least one chemical, but does not specifically disclose a backing that enables affixation to the predetermined surface. The Office Action holds that Anvar, et al. discloses a sensor having three layers, wherein the adhesion of sol-gel layers can be promoted by an adhesion layer between one sol-gel layer and another or a sol-gel and a substrate. Therefore, it would have been obvious to modify Wick's sensor to include a backing to enable the sensor to be affixable to a surface as disclosed in Anvar, et al. Reconsideration of the rejection under 35 U.S.C. §103(a), as being unpatentable over Wicks in view of Anvar, et al. is respectfully requested.

Wicks discloses a porous glass matrix made in accordance with a sol-gel process and includes an additive dispersed throughout the matrix. This additive can be an indicator for a specific analyte, such as a pH indicator. When prepared, the sol-gel is porous and the analyte can enter the matrix and react with the indicator. The sol-gel can be applied to a substrate such as a flow cell, lens, optical fiber, or indicator strip. Wicks' sol-gel is meant for lab use and not for outside surfaces. As stated above, Anvar, et al. does not disclose an adhesive layer for affixing the substrate to an exterior surface, nor would it be obvious to affix the sensor or Anvar, et al. to an exterior surface. One skilled in the art would not combine the invention of Wicks with the backing of Anvar, et al. to arrive at the present invention.

Since neither the cited references alone or in combination with knowledge in the art suggest the currently claimed invention, it is consequently respectfully

submitted that the claims are clearly patentable over the combination, even if the combination were to be applied in opposition to applicable law, and reconsideration of the rejection is respectfully requested.

The remaining dependent claims not specifically discussed herein are ultimately dependent upon the independent claims. References as applied against these dependent claims do not make up for the deficiencies of those references as discussed above, and the prior art references do not disclose the characterizing features of the independent claims discussed above. Hence, it is respectfully submitted that all of the pending claims are patentable over the prior art.

In view of the present amendment and foregoing remarks, reconsideration of the rejections and advancement of the case to issue are respectfully requested.

The Commissioner is authorized to charge any fee or credit any overpayment in connection with this communication to our Deposit Account No. 11-1449.

Respectfully submitted,

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/Sherry Kelly/  
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